



Congratulations! You have purchased a high quality stereo loudspeaker. When matched to comparable electronic equipment, expect years of quality high fidelity sound. Our belief is that music matters and we are focused on delivering superlative music reproduction everywhere in your home.

The following manual is designed to give you, the installer or owner, basic information as to the speaker's installation and operation. It is beyond the scope of this manual to go into all the details that must be taken into consideration in a sophisticated high fidelity system. When installing the wiring and speakers it is important to adhere to all local codes and regulations. Consulting a professional will help to maximize your system's performance.

If you have any questions that are not answered by this manual, contact your local dealer for assistance. For the most current information please visit: www.angstromloudspeakers.com.

GENERAL DESCRIPTION

These two-way speakers have specially designed woofers with linear long throw butyl rubber surrounds for long life and superior damping. Pivoting Dome Tweeters are utilized for excellent high frequency dispersion throughout your entire listening environment.

SHIPPING DAMAGE

Each speaker is thoroughly tested before it leaves the factory. However, in shipment, accidents may occur. Please inspect your speakers carefully when you receive them to make sure there is no damage. If there is, please notify your dealer, or supplier immediately for assistance. If you received your speakers by public transportation, report the damage at once to the shipping company.

AMPLIFIER OPERATION

These speakers will perform well with amplifiers from 5 to 125 Watts RMS. However, damage to the speakers can be done by amplifiers of nearly any power rating if the amplifier is overdriven into clipping. "Amplifier clipping" is a phrase used to describe a condition when, because of the volume demand, an amplifier is being asked for more power than it can give. Clipping causes distortion of the audio signal. If you should hear an unusual amount of distortion at high listening levels then consider reducing the volume. **DAMAGE DONE TO A SPEAKER BY CLIPPING IS NOT COVERED UNDER THE WARRANTY.**

SPEAKER PLACEMENT

Placement of In-wall Speakers should be carefully considered. Please contact a professional for assistance if you are uncomfortable with the planning or installation process.

Ideally, the speakers should be located where they will provide the best possible sound and ease of installation. It is beyond the scope of this publication to discuss all of the various aspects of speaker placement but here are some suggestions that should be helpful.

For more bass, place the speakers between 18 and 36 inches from an adjacent wall as measured to the center of the speaker. Avoid placing the speakers less than 18 inches from an adjacent wall. When placing speakers near a corner, avoid locating them an equal distance from the two adjacent walls.

When used in a home theater the front left and right speakers should be separated from each other a distance of 0.8 to 1.2 times the seating distance (assuming they are on the same plane as the center speaker). For example, if the seating position is 10 feet from the viewing screen and/or center speaker then ideally the distance between the left and right speakers should be somewhere between 8 and 12 feet, (10 x 1.2ft = 12ft). MTM style speakers are best installed in portrait orientation. However, landscape is often used for the center speaker for aesthetic or clearance purposes. If the speakers are located behind an acoustically transparent screen then all the speakers should be oriented portrait style. Tweeters may be aimed toward the listening area by pressing the lens area along side the tweeter dome

WIRING

To achieve maximum performance we recommend that the speaker cable be at least 16 gauge or larger for runs over 50 feet (15m) and that the cable be double insulated. A CL-2 or CL-3 rated cable may be required. Check local codes. "Zip cord," which is single insulated and is often made with clear insulation, should be avoided as it is not as durable. Allow about 2½ feet (0.8m) of free cable at the speaker cut-out and sufficient length at the other end to reach the electronics. Having to add extra cable later can be tedious and time consuming.

Avoid bundling speaker cables parallel to electrical cables for extended lengths. Though the impedance is low and the likelihood of interference low, this may help reduce hum and RF interference. When securing the cable, use care not to staple or nail through the electrical conductors. Doing so could result in a short that might damage the electronics.

When connecting your speakers, make sure proper polarity (phasing) is maintained. Simply put, this means ensuring the same wire which is connected to the positive terminal of the amplifier has its other end connected to the positive terminal of the speaker. It is important to check this on all speakers. If

	Overall (W x H)	Cut-Out (W x H x Depth)
INDF-5.25LCRS	9" x 15-3/4"	7-15/16" x 14-7/16" x 3-1/4"
AEF-5.25LCRS	9" x 15-3/4"	7-15/16" x 14-7/16" x 3-1/4"

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the connections on one of the speakers are reversed, (out of phase) the sound quality will be impaired.

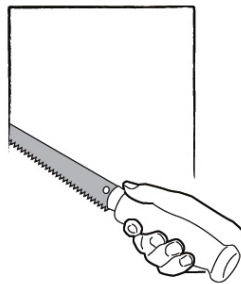
INSTALLATION

If the drywall has not yet been installed a Rough-in-Bracket (PCB-LCRS) may be used to reserve the speaker location on the wall. The PCB-LCRS brackets are available from the distributor or dealer where the speakers were purchased. When the brackets are used the holes are cut when the drywall is installed. The cable can be tied off on the bracket after securing the cable to a nearby joist.

If the drywall is installed and the speaker locations have not yet been established then do so now. Assess the wall for possible concealed obstructions such as wiring, plumbing, etc. Inspect the backside of the wall, the attic, and/or the crawl space if available for clues to possible obstructions. Use inspection holes with inspection tools (camera, mirror, flashlight, etc.) if absolutely necessary. Use a "stud finder" to locate the positions of the studs.

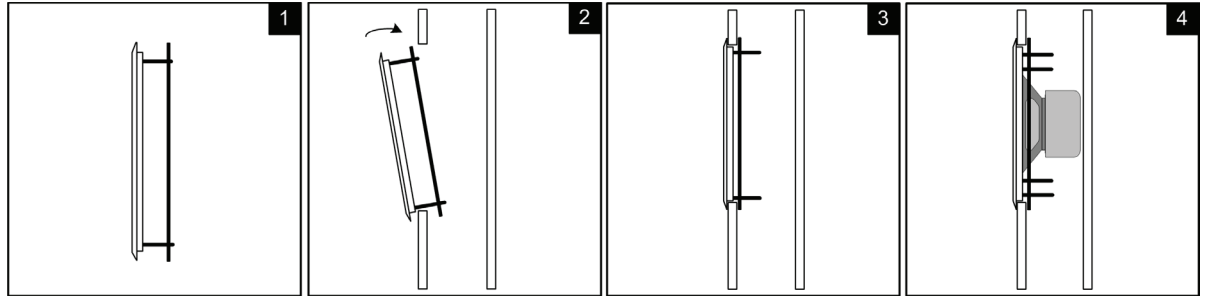
The INDF-5.25LCRS & AEF-5.25LCRS are shipped with a Retro Ring (A). With this retro ring, the edge of the speaker opening must be at least 1/2" (13mm) away from a stud if the speaker is installed in the portrait orientation. The AEF-5.25LCRS is shipped with an additional retro ring (B) for mounting closer to the stud when in the portrait orientation.

Once the speaker locations are established use the cardboard template (the outside of the inner cardboard rectangle) to mark the speaker cut-out. The dimensions for the cut-out are listed in the chart on the previous page. Using the proper tool, cut the appropriate sized hole in the wall. On drywall, clean cuts can be made with a drywall saw.



If the cable has not yet been run, do so now that you have access to the wall's interior.

To aid in speaker performance, a fibrous material, such as fiberglass, may be placed behind the speaker. This may also help to reduce unwanted sound from being transmitted into adjoining rooms. If the wall space has blown or loose insulation, care must be taken to prevent the loose insulation from entering the back of the speaker. This can be accomplished by placing a batt of fiberglass insulation over the back of the speaker.



As the diagrams show, the speakers utilize a metal Retro Ring which, after tightening with the 4 screws provided, acts as a clamp to hold the magnet frame in place. **Note: Use only the 4 outer holes for mounting the frame.**

Install the frame and retro ring assembly by passing the metal mounting ring through the cut-out as illustrated in **figures 1 & 2**. The frame should fit cleanly, without interference, in the cut-out hole. If the hole is a little small then trim the hole as needed. Lightly tighten the screws to secure the retro ring against back of the wall (**see fig. 3**). Use care not to over-tighten the screws or the frame may become distorted.

Pull the end of the cable out of the wall, strip back a section of the jacket as needed, and then expose 1/2" (13mm) of each conductor. Connect the wire to the terminals on the back of the speaker assembly, observing polarity (+ & -).

Insert the speaker into the frame and install the eight screws (**see fig. 4**).

The grilles can be painted using multiple light coats of spray paint. Custom color spray paints are available from specialty companies. Contact your dealer for more information. The grilles should be removed from the speaker and painted in a clean environment to prevent contamination. It is best to go around the grilles and apply the paint from multiple angles. **DO NOT** remove the scrim cloth from the backside of the grille. It is not replaceable.

Attach the grilles to the speakers and enjoy. Should you wish to remove the grilles from the speakers pull at the grilles' edge. Initially there will be significant resistance because the grilles are magnetically attached.

